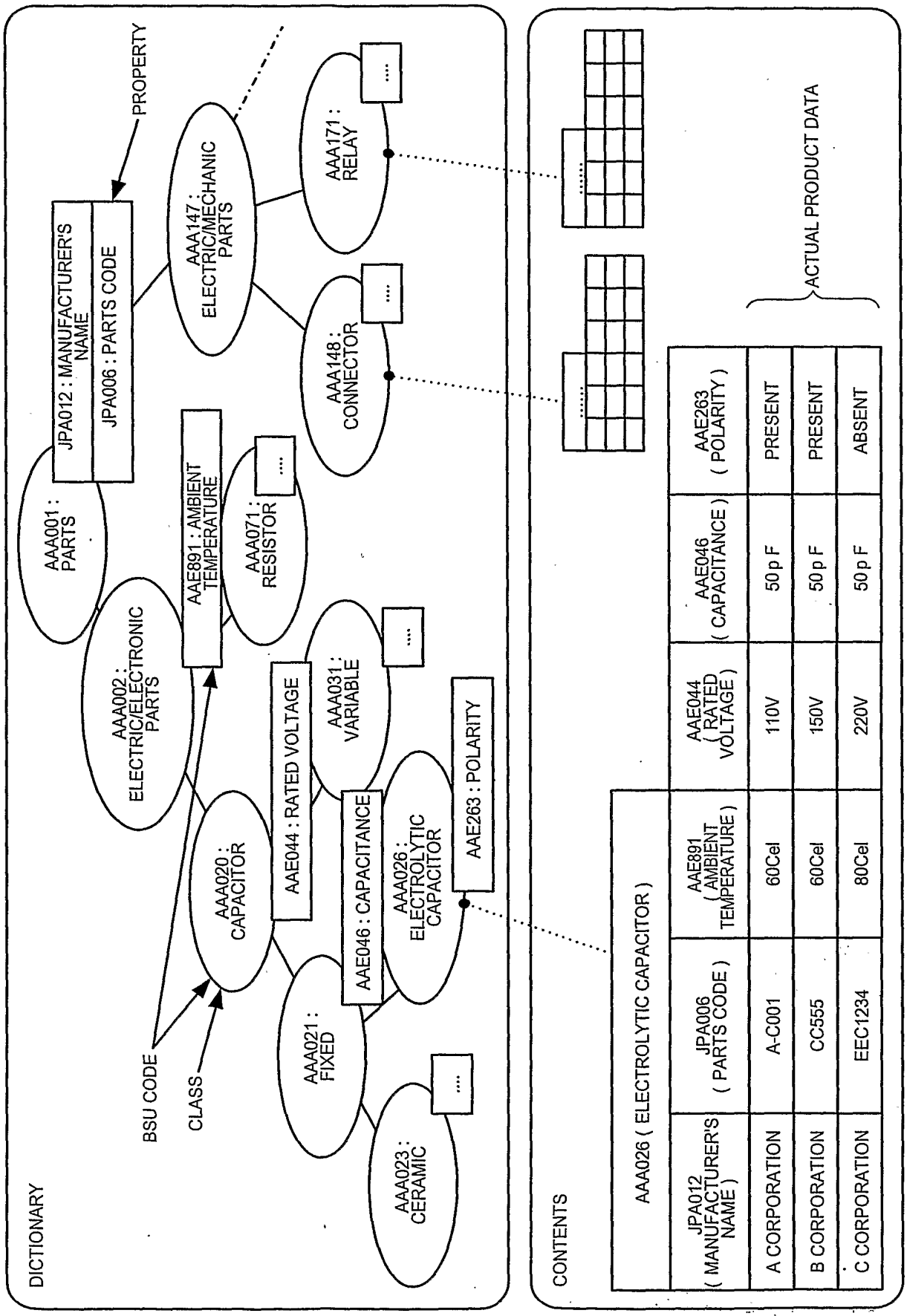
FIG.1



AAA026 (ELECTROLYTIC CAPACITOR)

JPA012 (MANUFACTURER'S NAME)	JPA006 (PARTS CODE)	AAE891 (AMBIENT TEMPERATURE)	AAE044 (RATED VOLTAGE)	AAE046 (CAPACITANCE)	AAE263 (POLARITY)
A CORPORATION	A-C001	60Cel	110V	50 p F	PRESENT
B CORPORATION	CC555	60Cel	150V	50 p F	PRESENT
C CORPORATION	EEC1234	80Cel	220V	50 p F	ABSENT

FIG.2

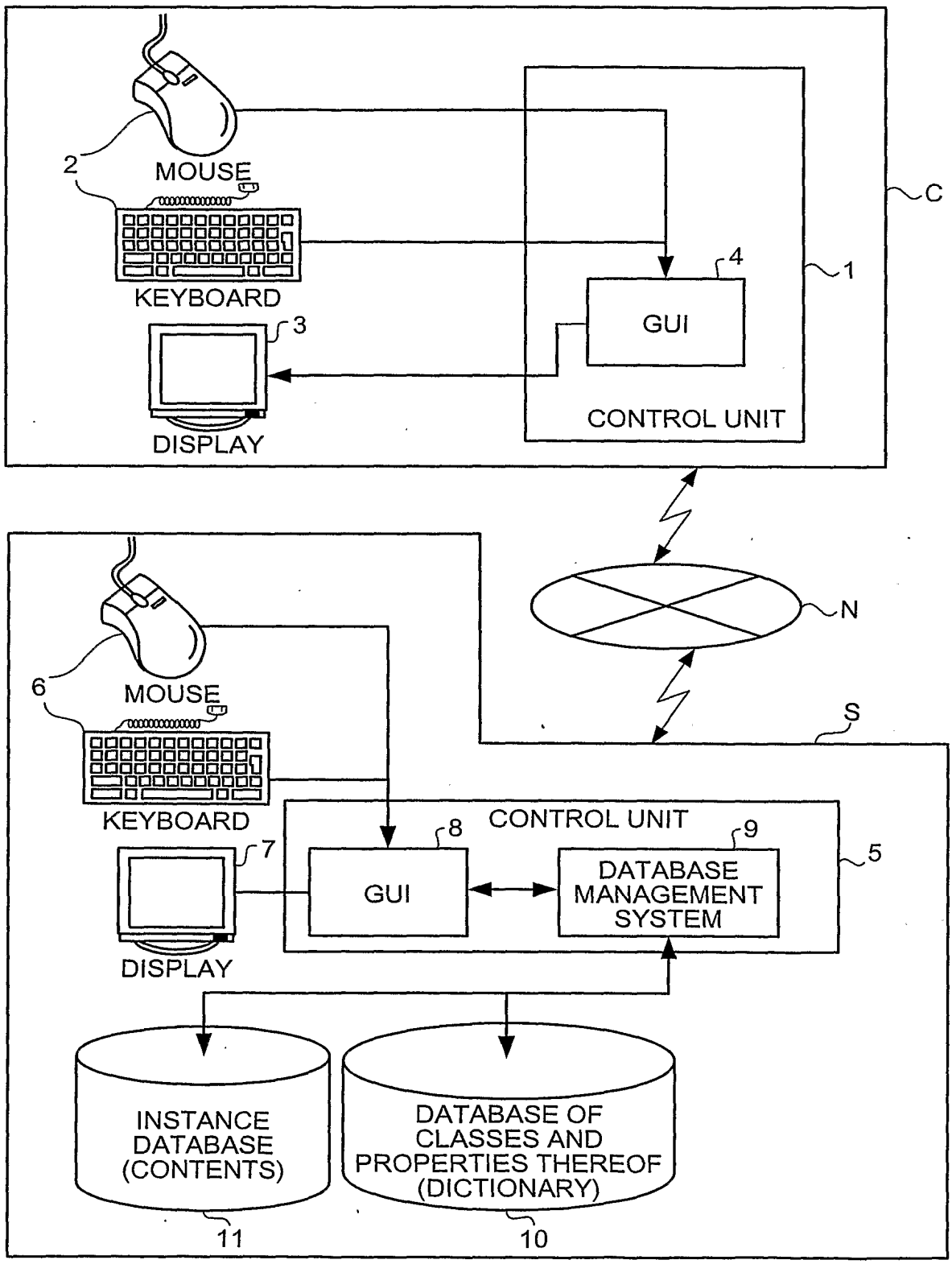

2
MOUSE
KEYBOARD
3
DISPLAY
4
GUI
CONTROL UNIT
1
C
N
6
MOUSE
KEYBOARD
7
DISPLAY
8
GUI
CONTROL UNIT
9
DATABASE MANAGEMENT SYSTEM
5
S
INSTANCE DATABASE (CONTENTS)
11
DATABASE OF CLASSES AND PROPERTIES THEREOF (DICTIONARY)
10

FIG.3

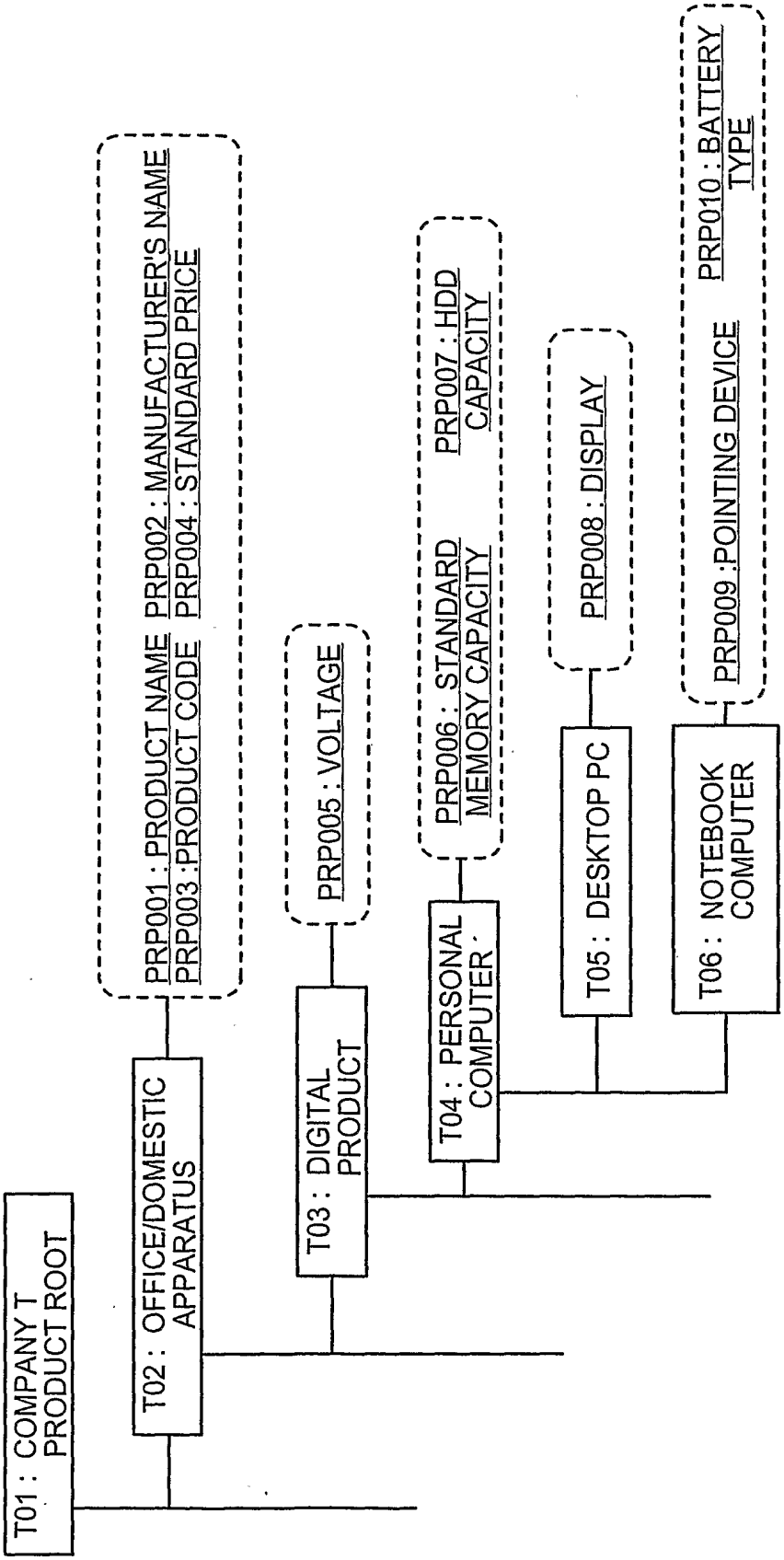

T01 : COMPANY T PRODUCT ROOT
T02 : OFFICE/DOMESTIC APPARATUS
PRP001 : PRODUCT NAME
PRP003 :PRODUCT CODE
PRP002 : MANUFACTURER'S NAME
PRP004 : STANDARD PRICE
T03 : DIGITAL PRODUCT
PRP005 : VOLTAGE
T04 : PERSONAL COMPUTER
PRP006 : STANDARD MEMORY CAPACITY
PRP007 : HDD CAPACITY
T05 : DESKTOP PC
PRP008 : DISPLAY
T06 : NOTEBOOK COMPUTER
PRP009 :POINTING DEVICE
PRP010 : BATTERY TYPE

FIG.4

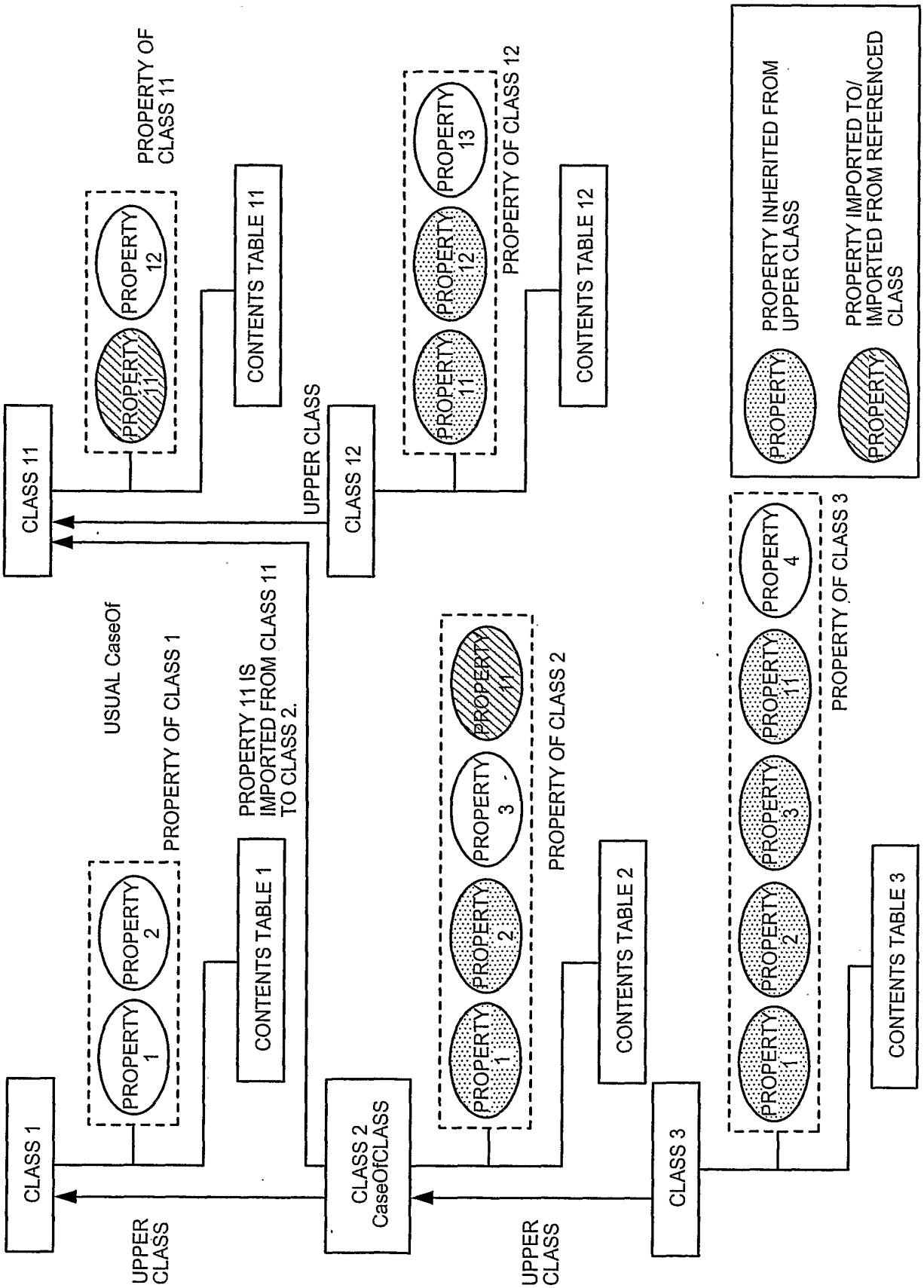

CLASS 1
CLASS 2
CaseOfCLASS
CLASS 3
CLASS 11
CLASS 12
UPPER CLASS
UPPER CLASS
UPPER CLASS
USUAL CaseOf
PROPERTY OF CLASS 1
PROPERTY OF CLASS 2
PROPERTY OF CLASS 3
PROPERTY OF CLASS 11
PROPERTY OF CLASS 12
PROPERTY 11 IS IMPORTED FROM CLASS 11 TO CLASS 2.
CONTENTS TABLE 1
CONTENTS TABLE 2
CONTENTS TABLE 3
CONTENTS TABLE 11
CONTENTS TABLE 12
PROPERTY 1
PROPERTY 2
PROPERTY 3
PROPERTY 4
PROPERTY 11
PROPERTY 12
PROPERTY 13
PROPERTY INHERITED FROM UPPER CLASS
PROPERTY IMPORTED TO/ IMPORTED FROM REFERENCED CLASS

FIG.5

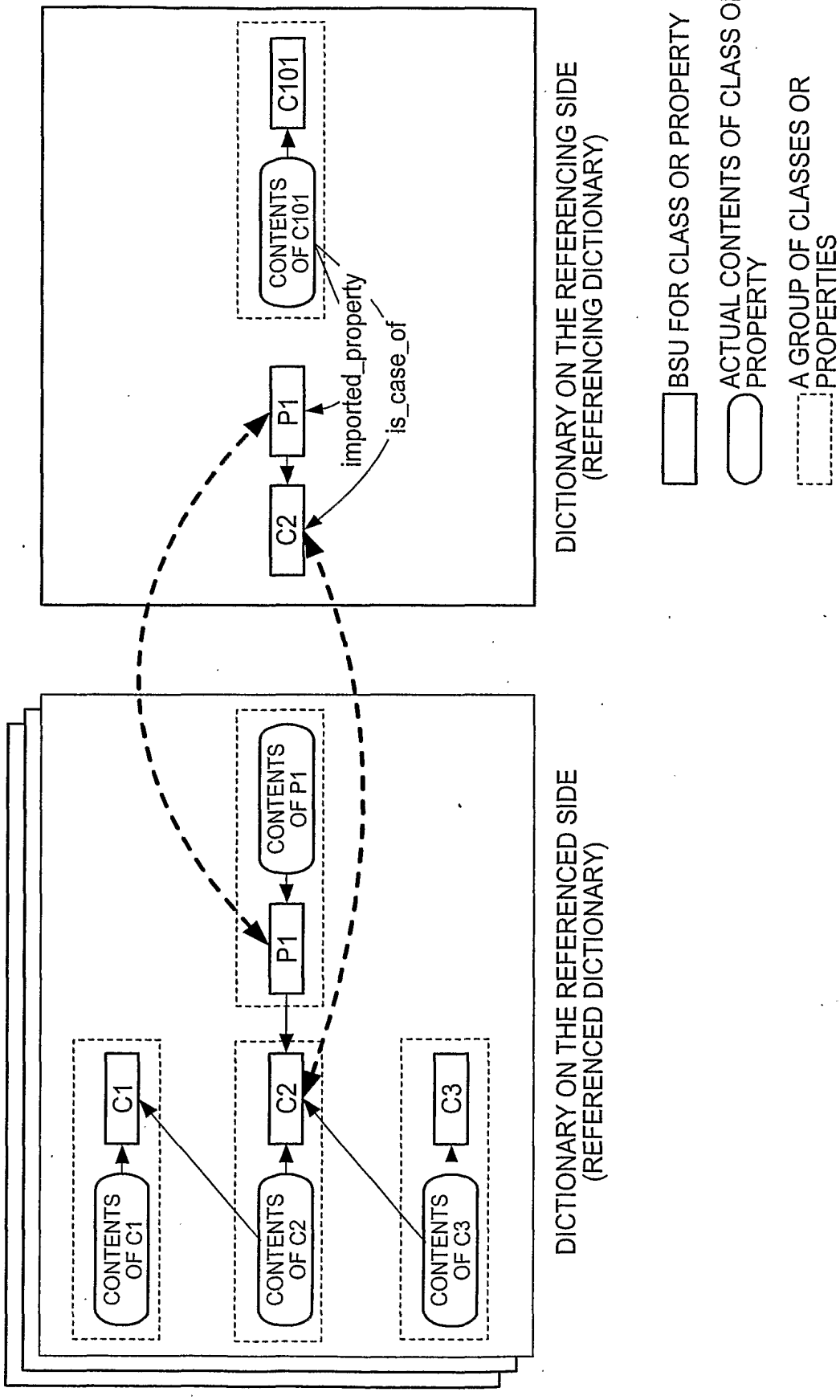

DICTIONARY ON THE REFERENCED SIDE
(REFERENCED DICTIONARY)
CONTENTS OF C1
C1
CONTENTS OF C2
C2
CONTENTS OF C3
C3
CONTENTS OF P1
P1
DICTIONARY ON THE REFERENCING SIDE
(REFERENCING DICTIONARY)
C2
P1
imported_property
is_case_of
CONTENTS OF C101
C101
BSU FOR CLASS OR PROPERTY
ACTUAL CONTENTS OF CLASS OR PROPERTY
A GROUP OF CLASSES OR PROPERTIES

FIG.6

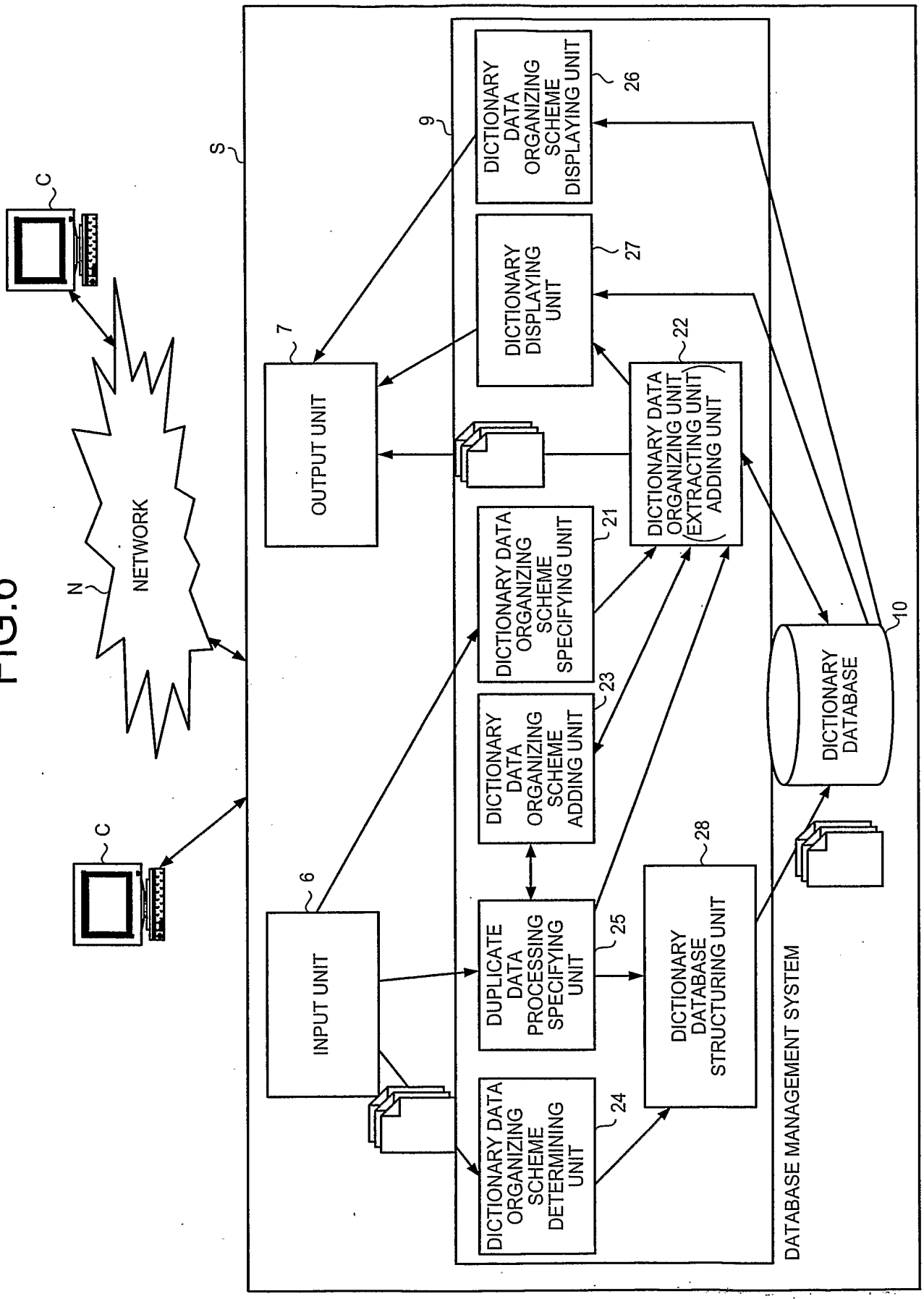

C
C
N
NETWORK
S
9
DICTIONARY DATA ORGANIZING SCHEME DISPLAYING UNIT
26
DICTIONARY DISPLAYING UNIT
27
7
OUTPUT UNIT
22
DICTIONARY DATA ORGANIZING UNIT (EXTRACTING UNIT) ADDING UNIT
21
DICTIONARY DATA ORGANIZING SCHEME SPECIFYING UNIT
23
DICTIONARY DATA ORGANIZING SCHEME ADDING UNIT
10
DICTIONARY DATABASE
6
INPUT UNIT
DUPLICATE DATA PROCESSING SPECIFYING UNIT
25
28
DICTIONARY DATABASE STRUCTURING UNIT
DICTIONARY DATA ORGANIZING SCHEME DETERMINING UNIT
24
DATABASE MANAGEMENT SYSTEM

FIG.7

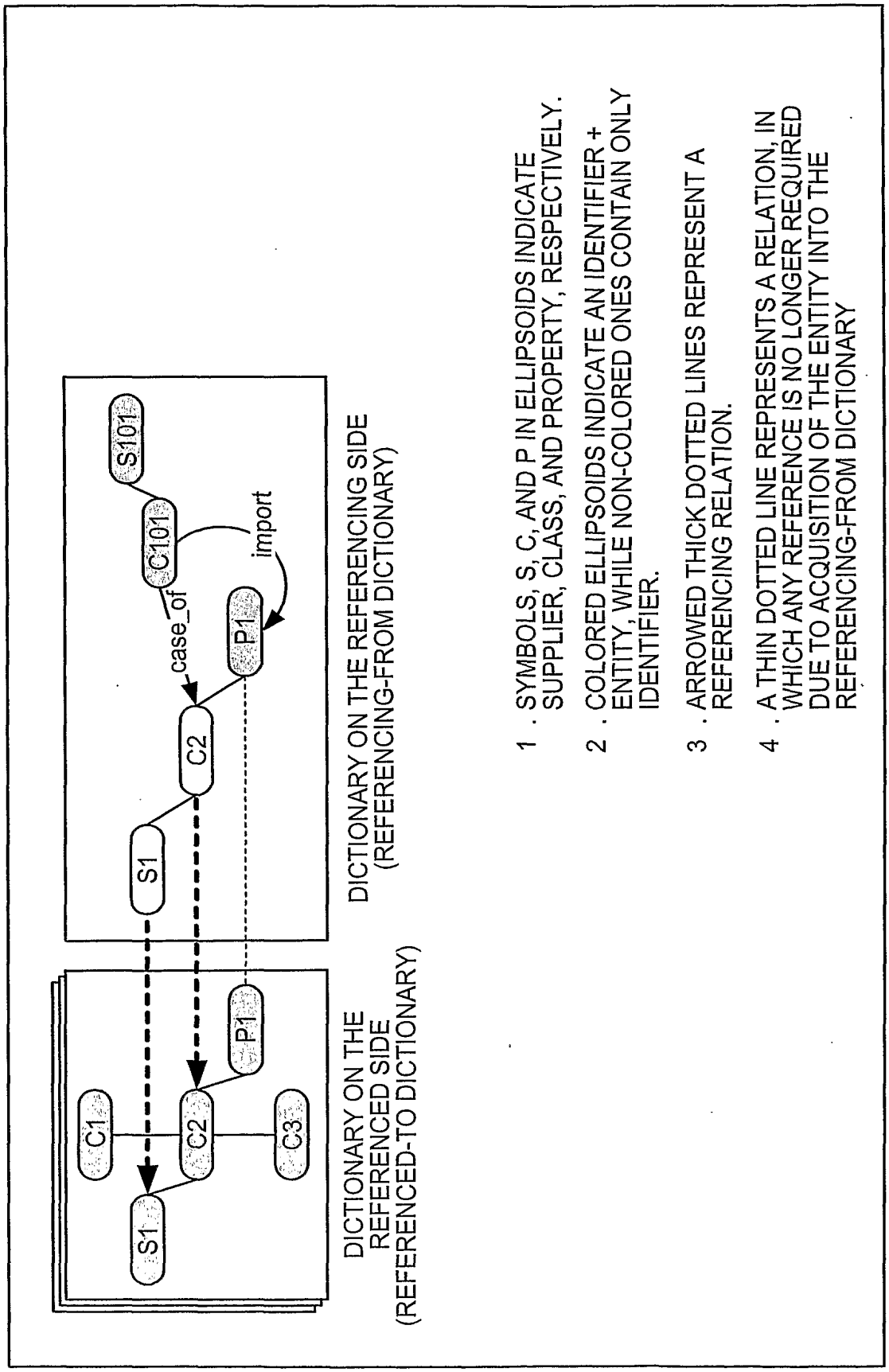

S101
C101
case_of
import
P1
C2
S1
DICTIONARY ON THE REFERENCING SIDE
(REFERENCING-FROM DICTIONARY)
C1
C2
C3
P1
S1
DICTIONARY ON THE
REFERENCED SIDE
(REFERENCED-TO DICTIONARY)
1 . SYMBOLS, S, C, AND P IN ELLIPSOIDS INDICATE SUPPLIER, CLASS, AND PROPERTY, RESPECTIVELY.
2 . COLORED ELLIPSOIDS INDICATE AN IDENTIFIER + ENTITY, WHILE NON-COLORED ONES CONTAIN ONLY IDENTIFIER.
3 . ARROWED THICK DOTTED LINES REPRESENT A REFERENCING RELATION.
4 . A THIN DOTTED LINE REPRESENTS A RELATION, IN WHICH ANY REFERENCE IS NO LONGER REQUIRED DUE TO ACQUISITION OF THE ENTITY INTO THE REFERENCING-FROM DICTIONARY

FIG.8

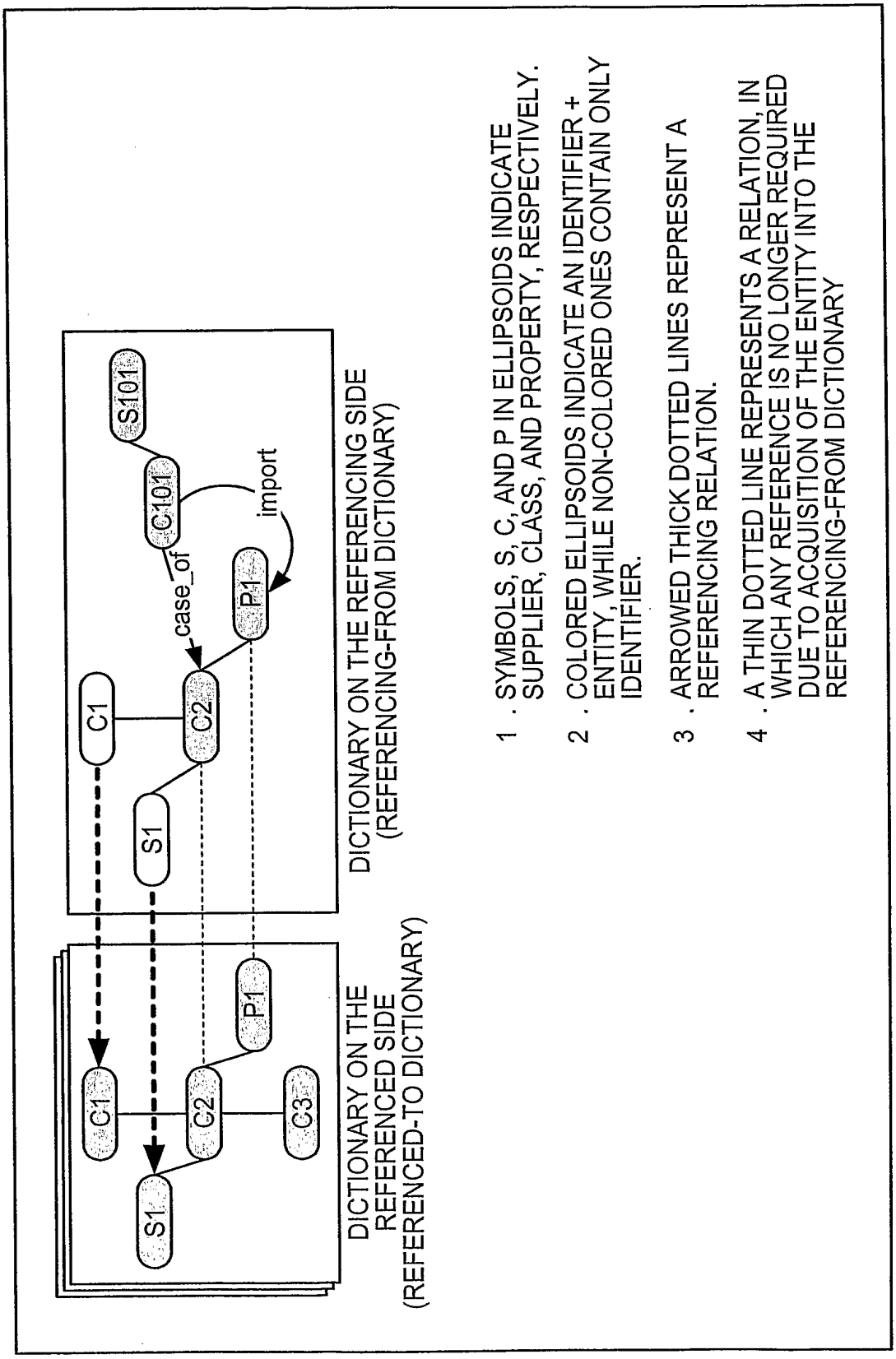

DICTIONARY ON THE REFERENCED SIDE
(REFERENCED-TO DICTIONARY)
C1
C2
C3
P1
S1
DICTIONARY ON THE REFERENCING SIDE
(REFERENCING-FROM DICTIONARY)
C1
C2
P1
S1
C101
S101
case_of
import
1 . SYMBOLS, S, C, AND P IN ELLIPSOIDS INDICATE SUPPLIER, CLASS, AND PROPERTY, RESPECTIVELY.
2 . COLORED ELLIPSOIDS INDICATE AN IDENTIFIER + ENTITY, WHILE NON-COLORED ONES CONTAIN ONLY IDENTIFIER.
3 . ARROWED THICK DOTTED LINES REPRESENT A REFERENCING RELATION.
4 . A THIN DOTTED LINE REPRESENTS A RELATION, IN WHICH ANY REFERENCE IS NO LONGER REQUIRED DUE TO ACQUISITION OF THE ENTITY INTO THE REFERENCING-FROM DICTIONARY

FIG.9

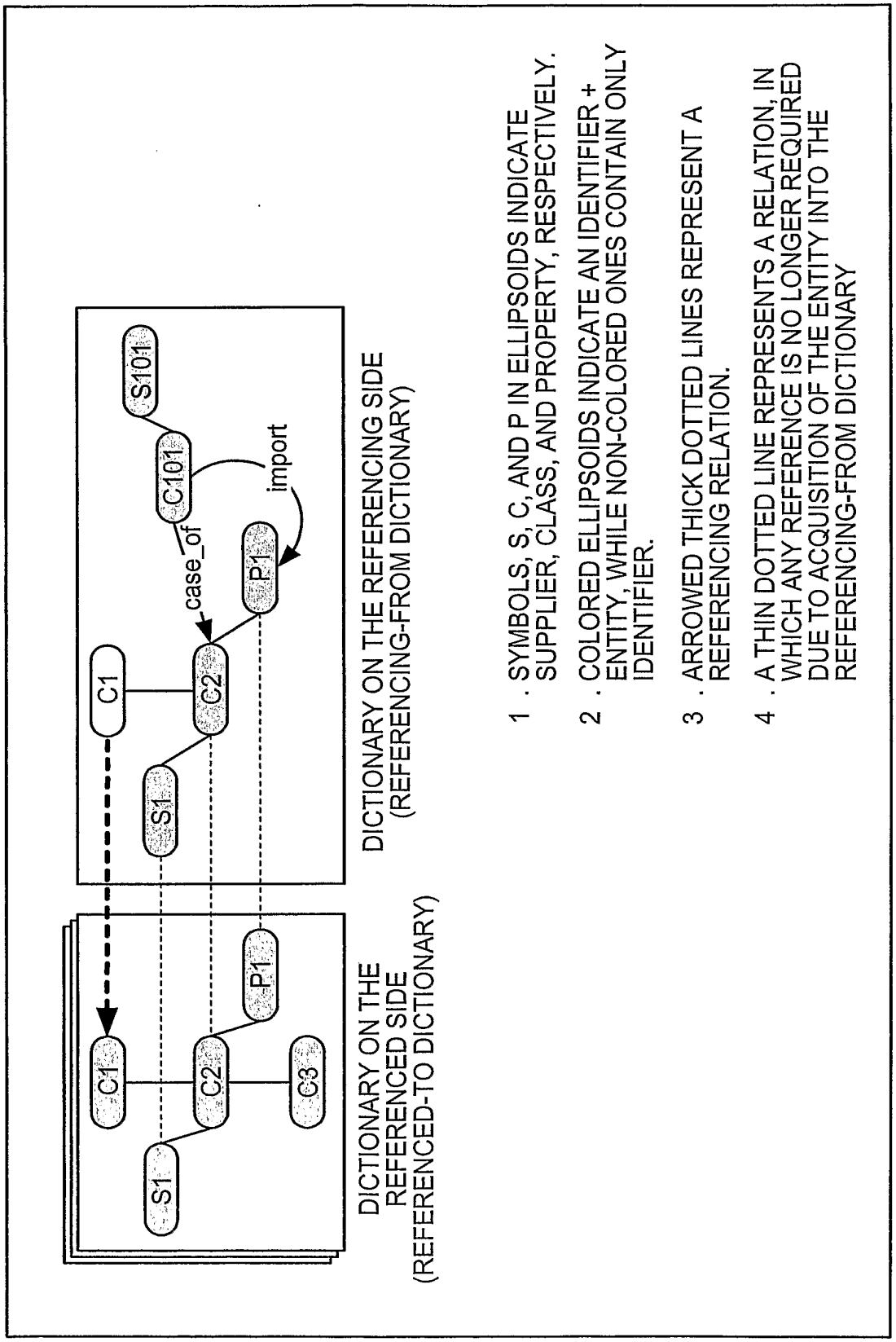

S101
C101
case_of
import
P1
C1
C2
S1
DICTIONARY ON THE REFERENCING SIDE
(REFERENCING-FROM DICTIONARY)
C1
C2
C3
P1
S1
DICTIONARY ON THE
REFERENCED SIDE
(REFERENCED-TO DICTIONARY)
1 . SYMBOLS, S, C, AND P IN ELLIPSOIDS INDICATE SUPPLIER, CLASS, AND PROPERTY, RESPECTIVELY.
2 . COLORED ELLIPSOIDS INDICATE AN IDENTIFIER + ENTITY, WHILE NON-COLORED ONES CONTAIN ONLY IDENTIFIER.
3 . ARROWED THICK DOTTED LINES REPRESENT A REFERENCING RELATION.
4 . A THIN DOTTED LINE REPRESENTS A RELATION, IN WHICH ANY REFERENCE IS NO LONGER REQUIRED DUE TO ACQUISITION OF THE ENTITY INTO THE REFERENCING-FROM DICTIONARY

FIG.10

201

```
<CASEOF>
   <PROPERTY>
      140/E-Commerce.E_C0001.E_P0001
   </PROPERTY>
   <PROPERTY>
      140/E-Commerce.E_C0001.E_P0002
   </PROPERTY>
   <CLASS_PROPERTY>
      140/AAA.A_C001.A_P001
   </CLASS_PROPERTY>
</CASEOF>
```

202

```
<PART21>
ISO-10303-21;
HEADER;
FILE_DESCRIPTION(('part21 test file'),'2;1');
FILE_NAME('test file.spf','2004-06-04    16:22:18',('Author'),
('T-Company'),'','','');
FILE_SCHEMA(('ISO13584_25_IEC61360_5_ LIBRARY_IMPLICIT_SCHEMA'));
ENDSEC;

DATA;
 :
 :
ENDSEC;
END-ISO-10303-21;
</PART21>
```

FIG.11

```
:
FILE_NAME('test.spf','2004-06-04 16:22:18'('author'),('T-company',
'<caseof><property>140/E-commerce.E-C0001.E-P00001</propery></caseof>',
'<caseof><property>140/E-commerce.E-C0001.E-P00002</propery></caseof>',
'<caseof><class_property>140/AAA.A-C001.A-P001</class_propery></caseof>'),
","","");
:
```

FIG.12

```
ENTITY extension_item_class_case_of
SUBTYPE OF item_class_case_of;
  imported_areas :  LIST OF text;
END_ENTITY;
```

FIG.13

```
< BEFORE EXTENSION >
    :
#16548=ITEM_CLASS(#10,#16565,'001',#16546,#16542,#16540,$,$,#16556,(#11798,
#11787,#11775,#11714),(),$,(),(),$);
    :
< AFTER EXTENSION >
    :
#16548=ITEM_CLASS(#10,#16565,'001',#16546,#16542,#16540,$,$,#16556,(#11798,
#11787,#11775,#11714),(),$,(),(),$,
('<property>140/E-commerce.E-C0001.E-P00001</property>',
'<property>140/E-commerce.E-C0001.E-P00002</propery>',
'<class_property>140/AAA.A-C001.A-P001</class_propery>'));
    :
```

FIG.14

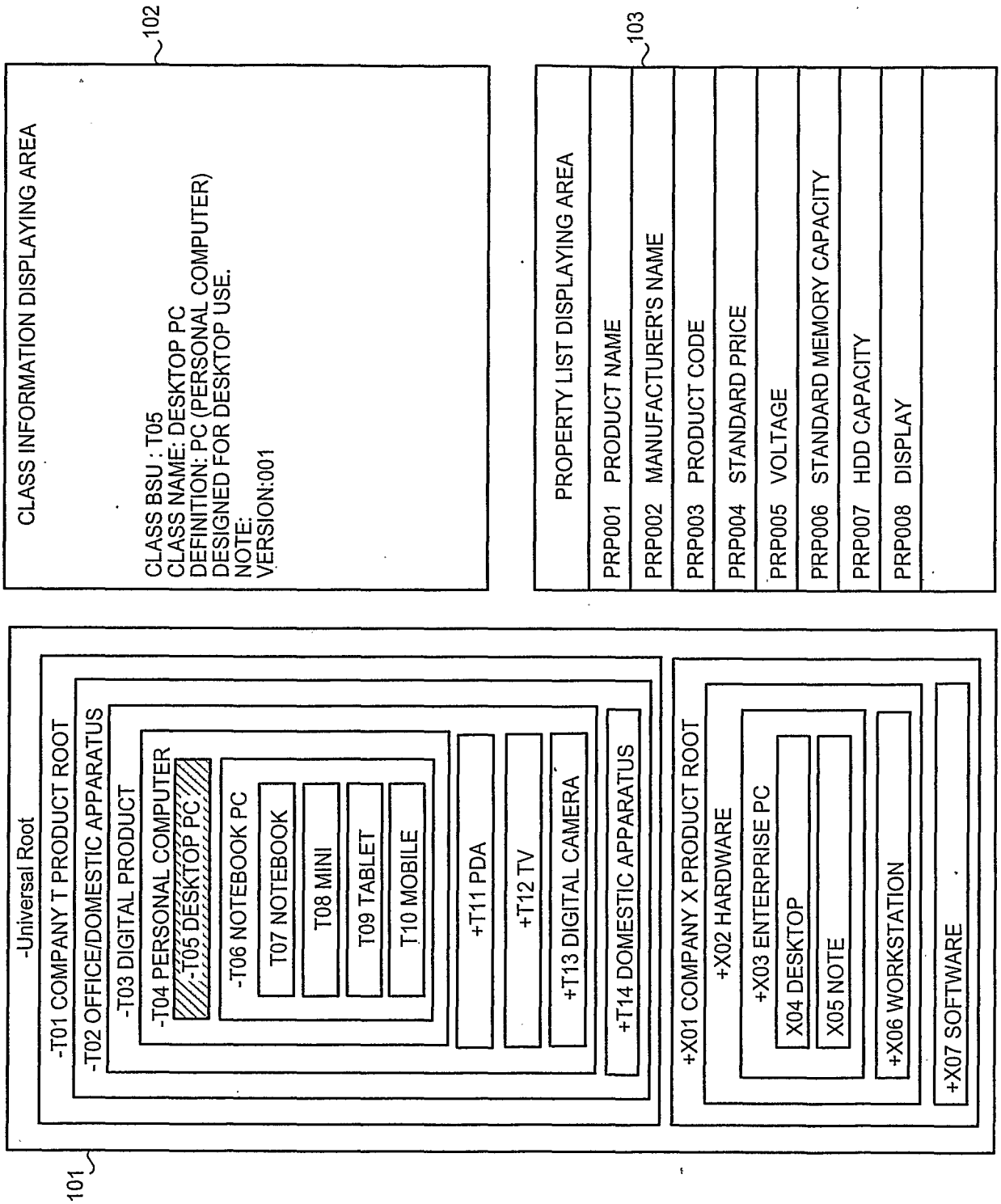

101
-Universal Root
-T01 COMPANY T PRODUCT ROOT
-T02 OFFICE/DOMESTIC APPARATUS
-T03 DIGITAL PRODUCT
-T04 PERSONAL COMPUTER
-T05 DESKTOP PC
-T06 NOTEBOOK PC
T07 NOTEBOOK
T08 MINI
T09 TABLET
T10 MOBILE
+T11 PDA
+T12 TV
+T13 DIGITAL CAMERA
+T14 DOMESTIC APPARATUS
+X01 COMPANY X PRODUCT ROOT
+X02 HARDWARE
+X03 ENTERPRISE PC
X04 DESKTOP
X05 NOTE
+X06 WORKSTATION
+X07 SOFTWARE
102
CLASS INFORMATION DISPLAYING AREA
CLASS BSU : T05
CLASS NAME: DESKTOP PC
DEFINITION: PC (PERSONAL COMPUTER)
DESIGNED FOR DESKTOP USE.
NOTE:
VERSION:001
103
PROPERTY LIST DISPLAYING AREA
PRP001 PRODUCT NAME
PRP002 MANUFACTURER'S NAME
PRP003 PRODUCT CODE
PRP004 STANDARD PRICE
PRP005 VOLTAGE
PRP006 STANDARD MEMORY CAPACITY
PRP007 HDD CAPACITY
PRP008 DISPLAY

FIG.15

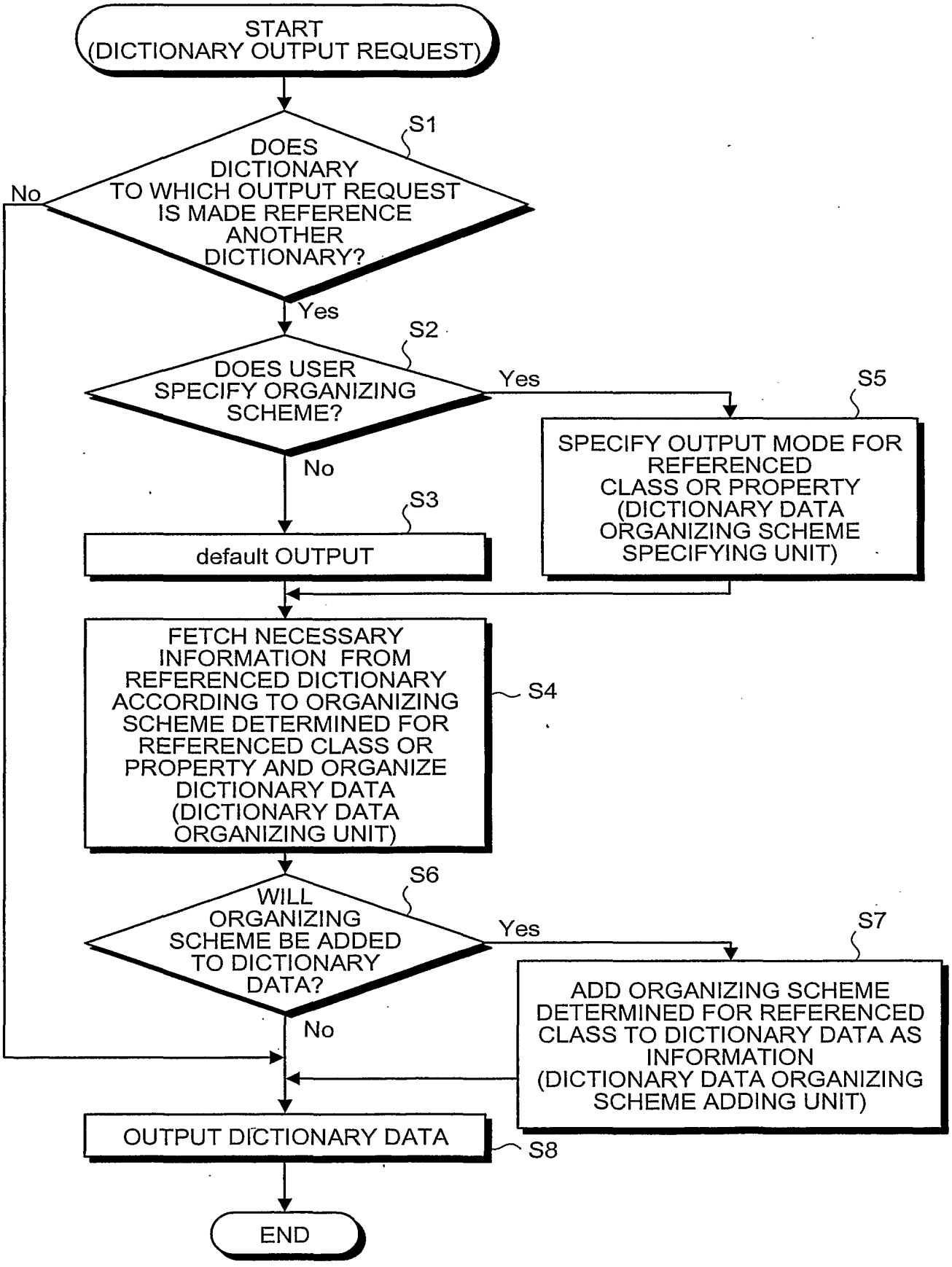

START
(DICTIONARY OUTPUT REQUEST)
S1
DOES DICTIONARY TO WHICH OUTPUT REQUEST IS MADE REFERENCE ANOTHER DICTIONARY?
No
Yes
S2
DOES USER SPECIFY ORGANIZING SCHEME?
Yes
S5
SPECIFY OUTPUT MODE FOR REFERENCED CLASS OR PROPERTY (DICTIONARY DATA ORGANIZING SCHEME SPECIFYING UNIT)
No
S3
default OUTPUT
FETCH NECESSARY INFORMATION FROM REFERENCED DICTIONARY ACCORDING TO ORGANIZING SCHEME DETERMINED FOR REFERENCED CLASS OR PROPERTY AND ORGANIZE DICTIONARY DATA (DICTIONARY DATA ORGANIZING UNIT)
S4
S6
WILL ORGANIZING SCHEME BE ADDED TO DICTIONARY DATA?
Yes
S7
ADD ORGANIZING SCHEME DETERMINED FOR REFERENCED CLASS TO DICTIONARY DATA AS INFORMATION (DICTIONARY DATA ORGANIZING SCHEME ADDING UNIT)
No
OUTPUT DICTIONARY DATA
S8
END

FIG.16

```
          :
          SYNCOPATED
          :
/* SUPPLIER INFORMATION */
 #16567=SUPPLIER_BSU('140/TOPAS//',*);
 #16570=SUPPLIER_ELEMENT(#16567,#16571,'001',#16569,#16568);
 #16571=DATES('2003-10-29','2003-10-29','2003-10-29');
 #16569=ORGANIZATION('TOPAS','T-company',' T-company');
 #16568=ADDRESS($,'1-1-1','Shibaura',$,'Minato-ku','Tokyo','105-
 8001','JAPAN','+81-3-3457-4511','',$,$);
/* CLASS INFORMATION */
 #16556=CLASS_BSU('TOPAS_C000001','001',#16567);
 #16557=ITEM_CLASS_CASE_OF(#16556,#16564,'001',#16555,#16550,$,$,$,#1
 6565,(#12100,#12091,#12082,#12072,
 #12062,#12051,#12040,#12029,#11987),
 (),$,(),(),$, *, *, *, *, *, (#10),(#112660, #112650),(),(),());
 #16564=DATES('2004-06-04','2004-06-04','2004-06-04');
 #16555=ITEM_NAMES(#16554,(#16551),LABEL(''),#1008,$);
 #16554=TRANSLATED_LABEL(('NOTE PC','ノートPC'),#1008);
 #16551=LABEL_WITH_LANGUAGE('PC','en');
 #16550=TRANSLATED_TEXT(('note type personal computer','ノート型のパーソ
 ナルコンピュータ'),#1008);
 #1008=PRESENT_TRANSLATIONS(('en','ja'));
          :
          SYNCOPATED
          :
/* REFERENCED CLASS INFORMATION*/
 #2=SUPPLIER_BSU('140/E-Commerce//', *);
 #10=CLASS_BSU('EC_C0001', '001', #2);
 #112650=PROPERTY_BSU('EC_P0001','005',#10);
/* REFERENCED PROPERTY INFORMATION*/
#7534=NON_DEPENDENT_P_DET(#112650,#16564,'001',#7532,#7527,$,$,$,$,(),
$,$,#7524,$);
#7532=ITEM_NAMES(#7531,(#7528),LABEL(''),#1008,$);
#7531=TRANSLATED_LABEL(('STANDARD PRICE','標準価格'),#1008);
#7528=LABEL_WITH_LANGUAGE('PRICE','en');
#7527=TRANSLATED_TEXT(('price by JPY, either a general standard price or a
referential price.','日本円で表した標準価格'),#1008);
#7524=REAL_MEASURE_TYPE('NR2..0.3',#7523);
#7523=DIC_UNIT(#7522,$);
#7522=NON_SI_UNIT(#7521,'JPY');
#7521=DIMENSIONAL_EXPONENTS(0.,0.,0.,0.,0.,0.,0.);
#112660=PROPERTY_BSU('EC_P0002','005',#10);
#7620=NON_DEPENDENT_P_DET(#112660,#16564,'001',#7618,#7614,$,$,$,$,(),
$,$,#6657,$);
#7618=ITEM_NAMES(#7617,(),LABEL(''),#1008,$);
#7617=TRANSLATED_LABEL(('END DATE OF SALES','販売終了日'),#1008);
#7614=TRANSLATED_TEXT(('the date the sale of the product is to end','販売を終
了する日付'),#1008);
#6657=STRING_TYPE('M..512');

ENDSEC;
END-ISO-10303-21;
```

FIG.17

```
:
SYNCOPATED
:
/* REFERENCED CLASS INFORMATION */
#2=SUPPLIER_BSU('140/E-Commerce//', *);
#16556=CLASS_BSU('EC_ROOT','001',#2);
#10=CLASS_BSU('EC_C0001', '001', #2);
#16548=ITEM_CLASS(#10,#16565,'001',#16546,#16542,#16540,$,$,#16556,(#117
98,#11787,#11775,#11714),(),$,(),(),$);
#16565=DATES('2004-06-04','2004-06-04','2004-06-04');
#16546=ITEM_NAMES(#16545,(),LABEL(''),$,$);
#16545=TRANSLATED_LABEL(('E-Commerce','イーコマース'),#1008);
#16542=TRANSLATED_TEXT(('Class for E-Commerce','電子商取引のためのクラス
'),#1008);
/* REFERENCED PROPERTY INFORMATION*/
#112650=PROPERTY_BSU('EC_P0001','005',#10);
#7534=NON_DEPENDENT_P_DET(#112650,#16564,'001',#7532,#7527,$,$,$,$,(),
$,$,#7524,$);
#7532=ITEM_NAMES(#7531,(#7528),LABEL(''),#1008,$);
#7531=TRANSLATED_LABEL(('STANDARD PRICE','標準価格'),#1008);
#7528=LABEL_WITH_LANGUAGE('PRICE','en');
#7527=TRANSLATED_TEXT(('price by JPY, either a general standard price or a
referential price.','日本円で表した標準価格'),#1008);
#7524=REAL_MEASURE_TYPE('NR2..0.3',#7523);
#7523=DIC_UNIT(#7522,$);
#7522=NON_SI_UNIT(#7521,'JPY');
#7521=DIMENSIONAL_EXPONENTS(0.,0.,0.,0.,0.,0.,0.);
#112660=PROPERTY_BSU('EC_P0002','005',#10);
#7620=NON_DEPENDENT_P_DET(#112660,#16564,'001',#7618,#7614,$,$,$,$,(),
$,$,#6657,$);
#7618=ITEM_NAMES(#7617,(),LABEL(''),#1008,$);
#7617=TRANSLATED_LABEL(('END DATE OF SALES','販売終了日'),#1008);
#7614=TRANSLATED_TEXT(('the date the sale of the product is to end','販売を終
了する日付'),#1008);
#6657=STRING_TYPE('M..512');

ENDSEC;
END-ISO-10303-21;
```

FIG.18

```
        :
        SYNCOPATED
        :
/* REFERENCED SUPPLIER INFORMATION*/
#2=SUPPLIER_BSU('140/E-Commerce//', *);
#21=SUPPLIER_ELEMENT(#2,#22,'001',#23,#24);
#22=DATES('2003-10-29','2003-10-29','2003-10-29');
#23=ORGANIZATION('EC','E-Commerce','Organization for E-Commerce');
#24=ADDRESS($,'1-1-1','Shibaura',$,'Minato-ku','Tokyo','105-8001','JAPAN','+81-
3-3457-4511','',$,$);
/* REFERENCED CLASS INFORMATION */
#16556=CLASS_BSU('EC_ROOT','001',#2);
#10=CLASS_BSU('EC_C0001', '001', #2);
#16548=ITEM_CLASS(#10,#16565,'001',#16546,#16542,#16540,$,$,#16556,(#11
798,#11787,#11775,#11714),(),$,(),(),$);
#16565=DATES('2004-06-04','2004-06-04','2004-06-04');
#16546=ITEM_NAMES(#16545,(),LABEL(''),$,$);
#16545=TRANSLATED_LABEL(('E-Commerce','イーコマース'),#1008);
#16542=TRANSLATED_TEXT(('Class for E-Commerce','電子商取引のためのクラ
ス'),#1008);
/* REFERENCED PROPERTY INFORMATION */
#112650=PROPERTY_BSU('EC_P0001','005',#10);
#7534=NON_DEPENDENT_P_DET(#112650,#16564,'001',#7532,#7527,$,$,$,$,(),
$,$,#7524,$);
#7532=ITEM_NAMES(#7531,(#7528),LABEL(''),#1008,$);
#7531=TRANSLATED_LABEL(('STANDARD PRICE','標準価格'),#1008);
#7528=LABEL_WITH_LANGUAGE('PRICE','en');
#7527=TRANSLATED_TEXT(('price by JPY, either a general standard price or a
referential price.','日本円で表した標準価格'),#1008);
#7524=REAL_MEASURE_TYPE('NR2..0.3',#7523);
#7523=DIC_UNIT(#7522,$);
#7522=NON_SI_UNIT(#7521,'JPY');
#7521=DIMENSIONAL_EXPONENTS(0.,0.,0.,0.,0.,0.,0.);
#112660=PROPERTY_BSU('EC_P0002','005',#10);
#7620=NON_DEPENDENT_P_DET(#112660,#16564,'001',#7618,#7614,$,$,$,$,(),
$,$,#6657,$);
#7618=ITEM_NAMES(#7617,(),LABEL(''),#1008,$);
#7617=TRANSLATED_LABEL(('END DATE OF SALES','販売終了日'),#1008);
#7614=TRANSLATED_TEXT(('the date the sale of the product is to end','販売を終
了する日付'),#1008);
#6657=STRING_TYPE('M..512');

ENDSEC;
END-ISO-10303-21;
```

FIG.19

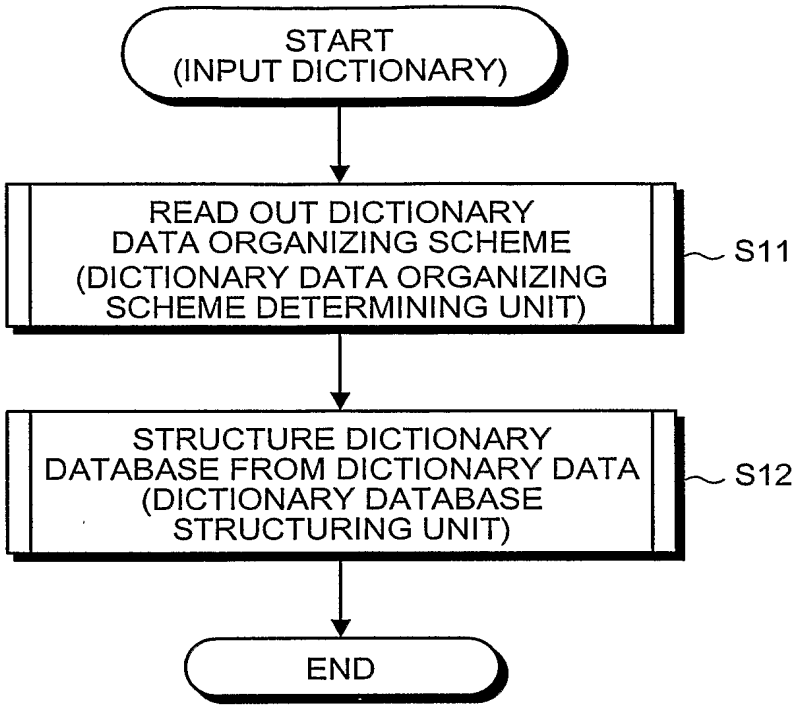

START
(INPUT DICTIONARY)
READ OUT DICTIONARY DATA ORGANIZING SCHEME (DICTIONARY DATA ORGANIZING SCHEME DETERMINING UNIT)
S11
STRUCTURE DICTIONARY DATABASE FROM DICTIONARY DATA (DICTIONARY DATABASE STRUCTURING UNIT)
S12
END

FIG.20

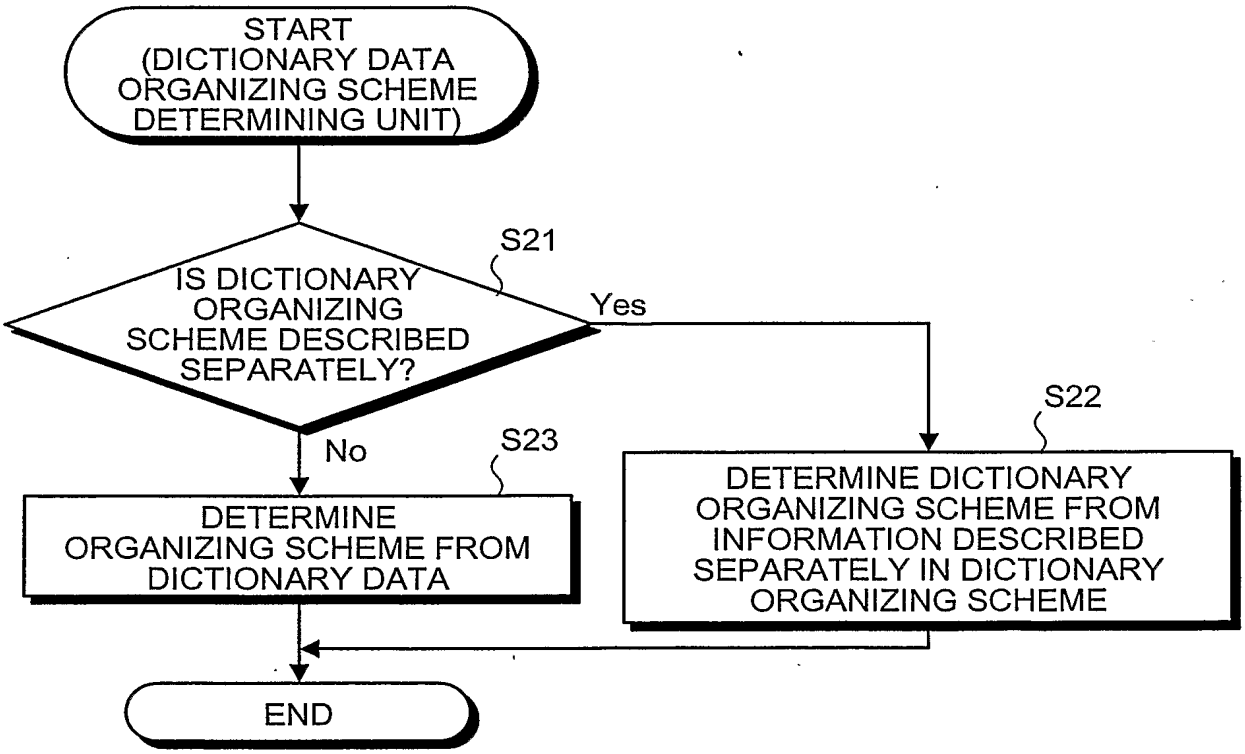

START
(DICTIONARY DATA ORGANIZING SCHEME DETERMINING UNIT)
S21
IS DICTIONARY ORGANIZING SCHEME DESCRIBED SEPARATELY?
Yes
No
S22
DETERMINE DICTIONARY ORGANIZING SCHEME FROM INFORMATION DESCRIBED SEPARATELY IN DICTIONARY ORGANIZING SCHEME
S23
DETERMINE ORGANIZING SCHEME FROM DICTIONARY DATA
END

FIG.21

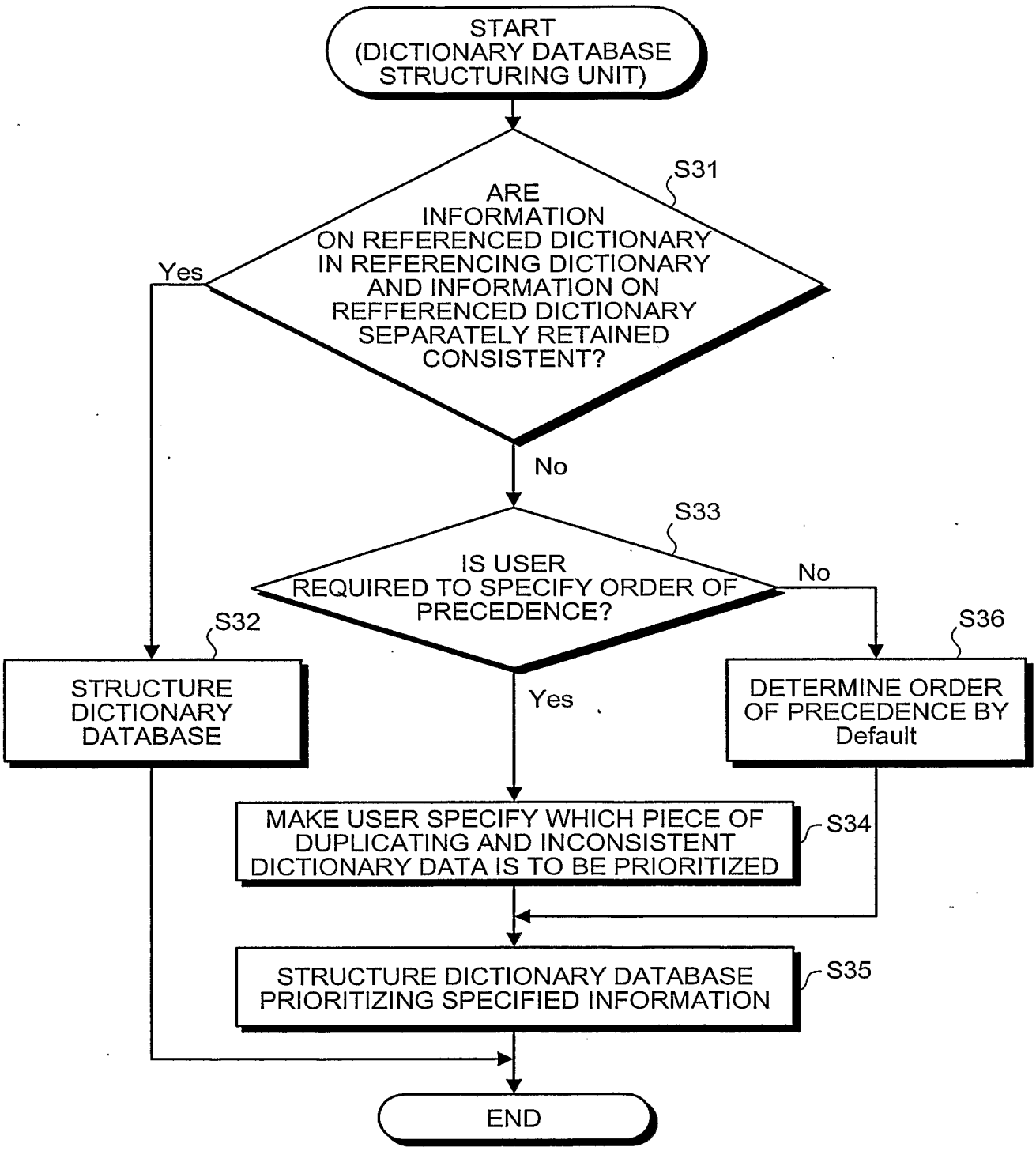
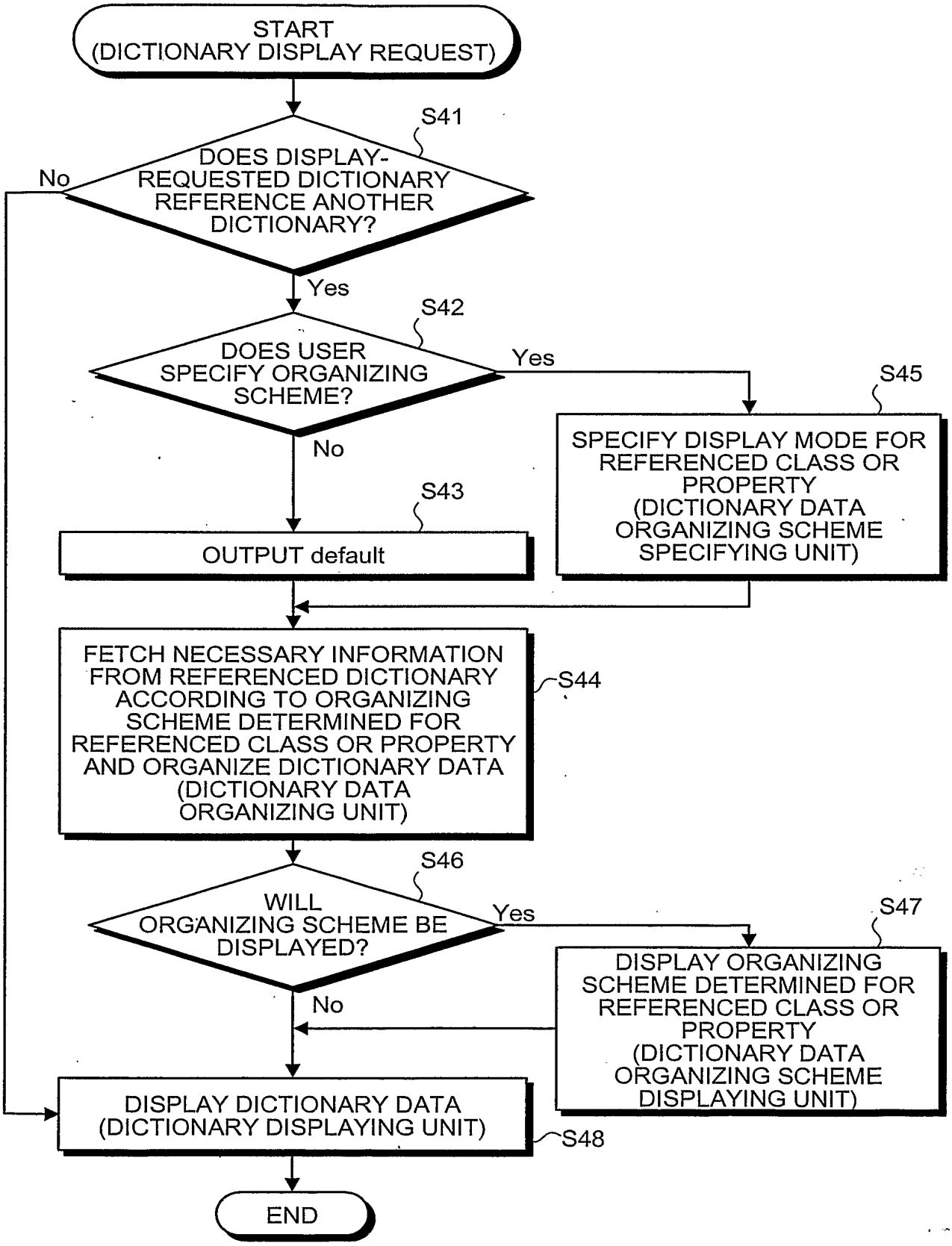

START
(DICTIONARY DATABASE
STRUCTURING UNIT)
S31
ARE
INFORMATION
ON REFERENCED DICTIONARY
IN REFERENCING DICTIONARY
AND INFORMATION ON
REFFERENCED DICTIONARY
SEPARATELY RETAINED
CONSISTENT?
Yes
No
S33
IS USER
REQUIRED TO SPECIFY ORDER OF
PRECEDENCE?
No
Yes
S32
STRUCTURE
DICTIONARY
DATABASE
S36
DETERMINE ORDER
OF PRECEDENCE BY
Default
MAKE USER SPECIFY WHICH PIECE OF
DUPLICATING AND INCONSISTENT
DICTIONARY DATA IS TO BE PRIORITIZED
S34
STRUCTURE DICTIONARY DATABASE
PRIORITIZING SPECIFIED INFORMATION
S35
END

FIG.22


START
(DICTIONARY DISPLAY REQUEST)
S41
DOES DISPLAY-REQUESTED DICTIONARY REFERENCE ANOTHER DICTIONARY?
No
Yes
S42
DOES USER SPECIFY ORGANIZING SCHEME?
Yes
S45
SPECIFY DISPLAY MODE FOR REFERENCED CLASS OR PROPERTY (DICTIONARY DATA ORGANIZING SCHEME SPECIFYING UNIT)
No
S43
OUTPUT default
FETCH NECESSARY INFORMATION FROM REFERENCED DICTIONARY ACCORDING TO ORGANIZING SCHEME DETERMINED FOR REFERENCED CLASS OR PROPERTY AND ORGANIZE DICTIONARY DATA (DICTIONARY DATA ORGANIZING UNIT)
S44
S46
WILL ORGANIZING SCHEME BE DISPLAYED?
Yes
S47
DISPLAY ORGANIZING SCHEME DETERMINED FOR REFERENCED CLASS OR PROPERTY (DICTIONARY DATA ORGANIZING SCHEME DISPLAYING UNIT)
No
DISPLAY DICTIONARY DATA (DICTIONARY DISPLAYING UNIT)
S48
END